

Amendments to the Claims

The following listing of claims replaces all prior versions and listings in the application:

Listing of Claims

1-10. (Canceled)

11. (Currently Amended) A communication system using quantum cryptography comprising:
subscriber stations connected to one or more quantum channels;
one or more quantum-cryptographic device associated with the one or more quantum
channels for generating a quantum key during use; and
several two or more interconnected switching stations that, during use, communicate via
public lines, using encryption agreed upon, without quantum-cryptographic key
exchange;

wherein, during use, the subscriber stations are connected to the switching stations via the one or
more quantum channels that generate a respective temporary quantum key and are adapted to
communicate via public lines using the quantum key.

12. (Previously Presented) The communication system of claim 11, wherein the switching
stations comprise a source of photons as the quantum-cryptographic device.

13. (Previously Presented) The communication system of claim 12, wherein the switching
stations further comprise a photon detector.

14. (Previously Presented) The communication system of claim 12, wherein the subscriber
stations comprise a photon detector.

15. (Previously Presented) The communication system of claim 11, wherein the switching
stations are interconnected at least partially by point-to-point links.

16. (Previously Presented) The communication system of claim 11, wherein the switching
stations are at least partially hierarchically interconnected.

17. (Previously Presented) The communication system of claim 11, wherein the subscriber
stations involved in a given communication generate a separate key bit sequence with their

associated switching station via the quantum channel after a request for a communication has been transmitted via a respective switching station during use.

18. (Previously Presented) The communication system of claim 17, wherein, during use, a switching station associated with a called subscriber station generates a third key bit sequence from the key bit sequences generated via the quantum channels and transmits this third key bit sequence to the called subscriber station which, using the key bit sequence known to it and generated by it together with the associated switching station, from the third key bit sequence generates the key bit sequence generated on the part of the calling subscriber station, which then finally is used as a mutual key for the communication between the subscriber stations.

19. (Previously Presented) The communication system of claim 11, wherein, during use, quantum keys generated for a given communication are discarded at the end of the communication.

20. (Previously Presented) The communication system of claim 11, wherein, during use, generated quantum keys are monitored for interference, and if interference that might suggest eavesdropping is detected, the communication is disrupted and the keys discarded.

21. (Previously Presented) The communication system of claim 11, wherein, during use, authentication data transmitted between the switching stations are checked by the switching stations prior to the establishment of a communication between subscriber stations.